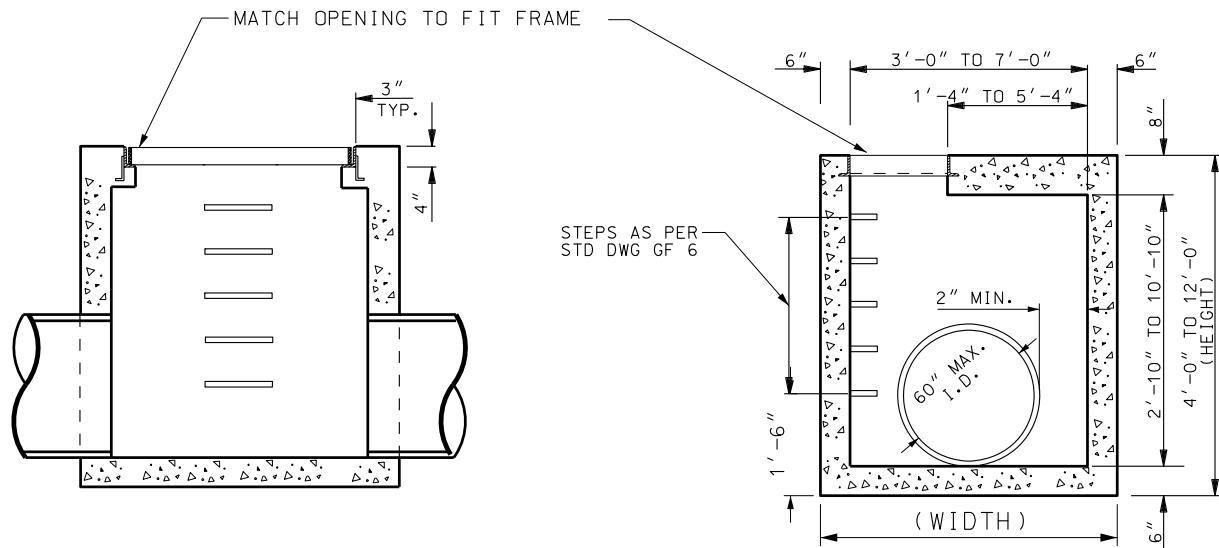
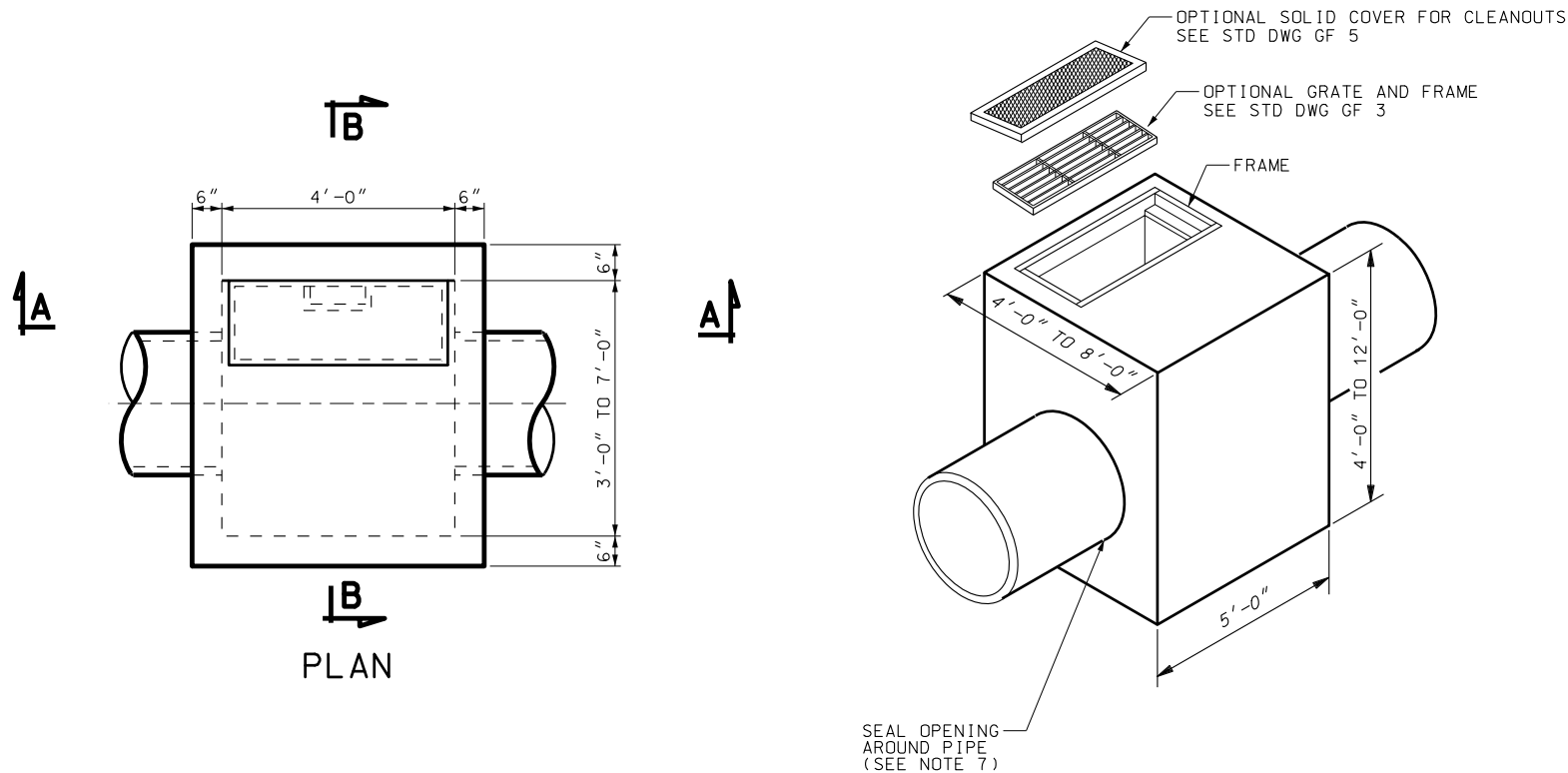


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SECTION A-A

SECTION B-B

CATCH BASIN / CLEANOUT BOX
GRATE AND FRAME APPLICATION

NOTES:

1. USE COATED DEFORMED REINFORCING STEEL BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. FIELD CUT AND BEND REINFORCING STEEL AS NECESSARY TO CLEAR PIPES AND MAINTAIN 2" COVER. REPAIR ANY DAMAGE OR CUTS TO THE EPOXY COATING ON REINFORCING BARS.
3. USE CLASS AA (AE) CONCRETE.
4. USE TYPE II CEMENT (LOW ALKALI).
5. PROVIDE 2" CONCRETE COVER TO REINFORCING STEEL.
6. FOR NUMBER, LOCATION, AND SIZE OF PIPE SEE ROADWAY PLANS.
7. PROVIDE $\frac{3}{4}$ " CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
8. FOR GRATE AND FRAME SEE STD DWG GF 3 OR GF 5.
9. CENTER PIPE IN BOX OPENING. USE APPROVED NON-SHRINK GROUT TO SEAL OPENING AROUND PIPE OR USE APPROVED PIPE MANUFACTURER'S PIPE BOOT.
10. FOR CURB AND GUTTER APPLICATION SEE STD DWG CB 1 AND CB 2 FOR BOX ELEVATIONS. INCLUDE CONCRETE QUANTITIES FOR CURB AND GUTTER IN ROADWAY QUANTITIES.
11. PLACE STEPS BEGINNING 2' BELOW FINISH GRADE AND PLACE ADDITIONAL STEPS PER STD DWG GF 6.
12. USE 8" LONG, #4 BARS @ 8" O.C. MAX. OR EXTEND BOX REBARS 4" INTO THE CURB AND GUTTER, TO ATTACH CURB AND GUTTER TO BOX.
13. WHEN USING THE BOX AS AN INLET, SET EDGES OF THE BOX TO MATCH PAVEMENT FINISH GRADE AROUND THE BOX PERIMETER. SET TOP OF SURFACE TO MATCH PAVEMENT CROSS AND LONGITUDINAL SLOPE. RESET ANY BOXES WHERE BOX SURFACE OR GRATE AND FRAME IS NOT FLUSH WITH PAVEMENT. DO NOT EXCEED $\frac{1}{4}$ " GRATE DEPRESSION.

DESIGN DATA

HS 20 STANDARD SPECIFICATION FOR HIGHWAY
BRIDGES 17TH EDITION.

STRUCTURAL STEEL $F_y = 36,000$ psi
STRUCTURAL CONCRETE $f'_c = 4,000$ psi
 $F_y = 60,000$ psi
 $n = 8$

QUANTITIES

(FOR DESIGN INFORMATION ONLY)
USE THE FOLLOWING EQUATIONS FOR CALCULATING
VOLUME OF CONCRETE AND WEIGHT OF STEEL:
(ENTER ALL DIMENSIONS IN FEET)

CONCRETE VOLUME

BOX WIDTHS OF 4' TO 8' & DEPTHS OF 4' TO 12'

CONCRETE VOLUME (CU YDS) = (0.037*WIDTH+0.1853) *DEPTH+
(0.2161*WIDTH - 0.2811)

TO CALCULATE VOLUME OF CONCRETE OF PIPE HOLES
VOLUME OF HOLES (CU YDS) = 0.0083 * (PIPE DIAMETER) - 0.0929

WEIGHT OF REINFORCING STEEL

BOX WIDTHS OF 4' UP TO 8' & DEPTHS OF 4' TO 12'

REBAR WEIGHT (LBS) = (4.101*WIDTH + 19.869) * DEPTH +
(19.742 * WIDTH + 15.267)

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALE PRICE \$1.00

RECOMMENDED FOR APPROVAL
CHAIRMAN STANDARDS COMMITTEE
APPROVED
DEPUTY DIRECTOR

STANDARD CATCH BASIN
AND CLEANOUT BOX

STD DWG
CB 5A

STANDARD DRAWING TITLE

REMARKS

NO. DATE APPR.